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On two genera of mealybugs (Homoptera: Coccoidea: Pseudococcidae)

by

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The author gives a preliminary account of the composition of two genera of mealybugs, *Hypogeococcus* and *Phenacoccus*, based on a few species described or recorded from South Africa.

HYPOGEOCOCCUS Rau, 1938

Type-species: *Hypogeococcus barbarae* Rau, 1938

As the etymology of the word suggests, the generic name *Hypogeococcus* was introduced for a root-infesting mealybug which, however, may also thrive on the aerial parts of the host plant. When Ferris (1953) reviewed the characters of the genus he assigned to it a new species, pointing out that "it is possible that the two . . . should not regarded as congeneric, yet they are sufficiently similar to be not too disharmonious." The inclusion of *Pseudococcus mirabilis* Brain, 1915, whose relationship with the type-species is also somewhat loose, raises a rather similar classificatory problem. On the other hand their differences would hardly warrant, at present, the alternative course of naming a new genus. Such an action might, however, be opportune (or even necessary) when more is known about the pseudococcid fauna of this part of the African continent.

Hypogeococcus mirabilis (Brain, 1915) **comb. nov.,** fig. 1

Pseudococcus mirabilis Brain, 1915: 121
Pseudococcus mirabilis Brain; De Lotto, 1958: 99

The study of newly collected specimens disclosed that the writer's (De Lotto, 1958) redescription of this mealybug, which was then based on females in a much advanced stage of maturity and in very poor condition, though as a whole adequate for the recognition of the species, was not entirely correct and the following amendments should be made to it: 1) the tubular ducts on the marginal areas of the venter and dorsum extend as far as the prothorax; 2) the dorsal body setae on the head are slender, setose and tend to be progressively more robust towards the posterior end of the body where they are as stout as the spines of the marginal cerarii of the last abdominal segments; 3) the dorsal cephalic ostioles are obsolete, their place being marked by faint wrinkles of the derm.

The accompanying diagram (fig. 1) was based upon a young specimen 0,9 mm long and 0,5 mm wide.

MATERIAL EXAMINED. CAPE PROVINCE, Citrusdal: 27.ii.1969, on *Cliffortia ruscifolia* Linnaeus (Rosaceae) (*P. Insley*).

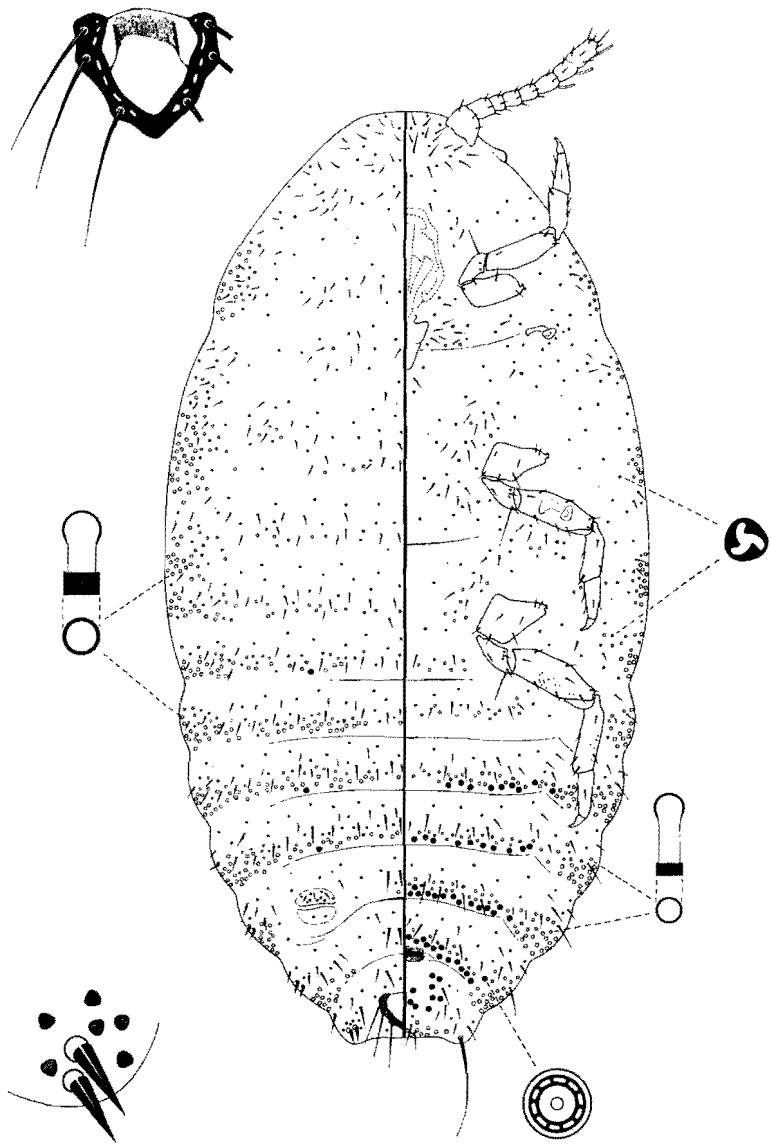

Fig. 1. *Hypogeococcus mirabilis* (Brain).

PHENACOCCUS Cockerell, 1893

Type-species: *Pseudococcus aceris* Signoret, 1875

In spite of Ferris' (1950) and McKenzie's (1967) opinion to the contrary, the writer still holds the view that the composition of this genus is by no means homogeneous and an initiative to re-arrange species in small natural groups should sooner or later be undertaken, possibly on a world wide basis.

With the description of a new form and the addition of a new record the number of species presently known from South Africa is raised to six, namely: *Phenacoccus graminosus* McKenzie, 1960; *Ph. orcinus* De Lotto, 1964; *Ph. proximus* sp. n.; *Ph. solani* Ferris, 1918; *Pseudococcus segnis* Brain, 1915; and *Ps. stelli* Brain, 1915.

They can be separated by using the following provisional key.

1 Multilocular pores present on the ventral and dorsal side of the body 2
Multilocular pores either lacking or occurring only on the ventral side of the abdomen 4
2 Ventral quinquelocular pores absent . . . . . **proximus**
Quinquelocular pores numerous on the ventral mid-region of head, thorax and first segments of the abdomen 3
3 Ventral and dorsal multilocular pores numerous and extending as far as the head; circulus present or absent . . . . . **stelli**
Multilocular pores mostly occurring on the ventral and dorsal sides of the abdomen and metathorax; circulus always present . . . . . **graminosus**
4 Last six abdominal segments anterior to the anal lobes each provided with an additional marginal cerarius; altogether 24 pairs of cerarii are recognizable . . . **orcinus**
Margin of the body with no more than 18 pairs of cerarii 5
5 Circulus and multilocular pores lacking . . . . . **segnis**
Circulus present; multilocular pores set in transverse rows on the ventral side of the last four or five abdominal segments . . . . . **solani**

Phenacoccus proximus spec. nov., fig. 2

Habit of living adults not seen. Mounted specimens elliptical in outline with the anal lobes rather well developed; dimensions of the graphotype: length 1,9 mm, width 1,2 mm. Margin of the body with a complete series of eighteen pairs of cerarii. Anal lobe cerarii each formed with three conical spines surrounded by a loose group of 12 to 15 trilocular pores and one or two small spiniform auxiliary setae; area about the cerarian spines not sclerotized. All remaining cerarii are built up with two spines, except the ocular one (xvi) which has three. The spines are somewhat shorter and more slender than those of the anal lobes cerarii and are beset by three to six trilocular pores but devoid of auxiliary setae. Ventral side of each anal lobe with a small, irregularly shaped sclerotized bar in front of the sub-apical seta; apical seta robust, 135–145 μ long; sub-apical one 60–70 μ. Multilocular pores distributed all over the body; on either side of the abdomen and on the dorsal side of the thorax they are arranged in irregular transverse segmental rows. Quinquelocular pores entirely lacking. Trilocular pores not very numerous and evenly distributed. Tubular ducts of the oral collar type of two sizes. The larger ones occur on the dorsum and on the marginal area of the venter where they are set singly and wide apart from one another. The smaller ducts are rather abundant on either side of the abdomen; a few are scattered on the ventral mid-region of the thorax and head; in either instance they are intermingled or associated with the multilocular pores. Cephalic and abdominal dorsal ostioles fairly well developed with their inner lips membranous; outer ones with a few minute setae and some trilocular pores. Circulus

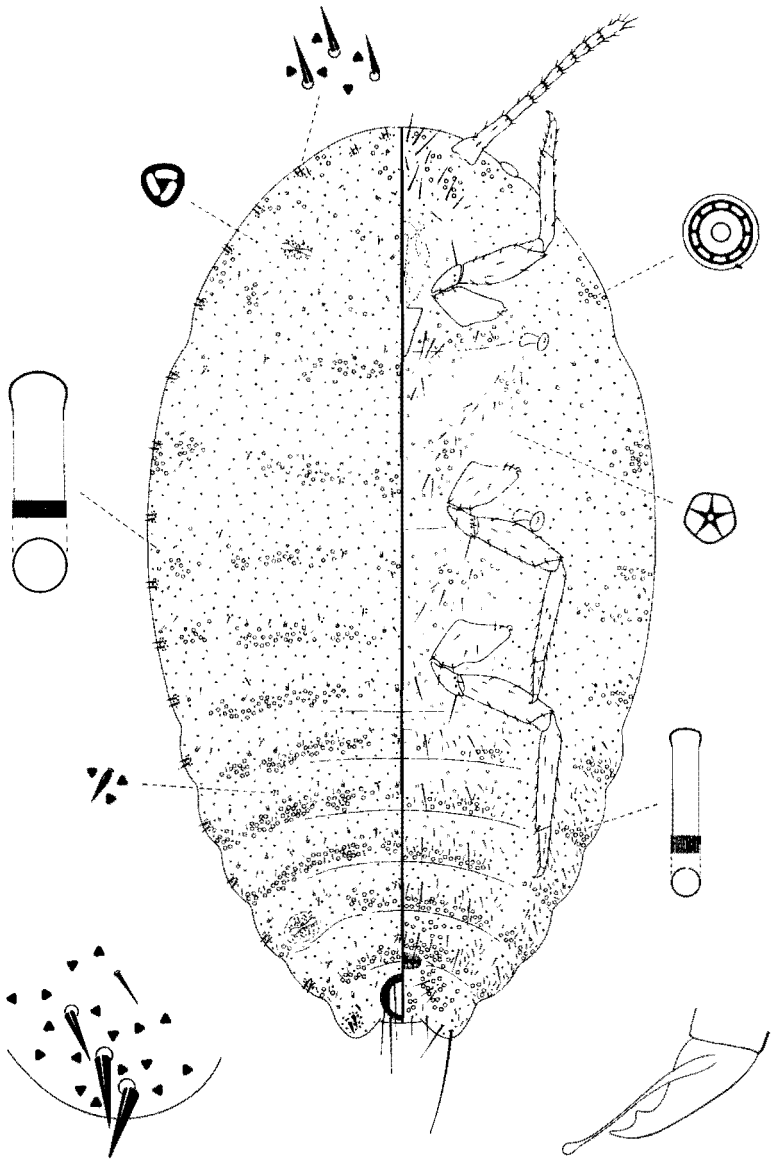

Fig. 2. *Phenacoccus proximus* spec. nov.

situated at the centre of the (iv) urosternite; rather large, transversally elongate, with the surface membranous. Dorsal setae very small, about 10 μ long, lanceolate; at times beset by one to three trilocular pores. Ventral setae much longer, setose; longest seta on the sub-median area of the pregenital (viii) abdominal segment 55–65 μ. Legs all well developed; claws with a denticle on the plantar edge; translucent pores absent; dimensions of L (iii): trochanter plus femur 300–345 μ; tibia plus tarsus 335–415 μ. Anal ring apical, cellular, entire, with six setae measuring 100–115 μ in length. Rostrum dimerous, 120–125 μ long. Antennae with nine segments; total length 450–520 μ.

MATERIAL EXAMINED. CAPE PROVINCE. Richtersveld, Numees Mine: 21.ix.1967, ♀ holotype and 2 ♀♀ paratypes collected on *Pachypodium namaquanum* (Wyley *ex* Harv.) Welw. (Apocynaceae) (*H. D. Brown*); coll. No. H. C. 2919. The whole type series is deposited in the South African National Collection of Insects, Pretoria.

This new mealybug is closely related to *Ph. graminosus* and *stelli*, but differs in having no ventral quinquelocular pores. Together they form a distinctive group of species characterized by the occurrence of multilocular pores on the dorsal side of the body.

Phenacoccus solani Ferris, 1918

This species was originally described from California from specimens collected on a composite and on sundry other host plants, such as potato, tomato, sunflower, etc. From data subsequently supplied by Ferris (1950) and by McKenzie (1967) the species appears to be very common and widely distributed in northern America. Though neither author is explicit about the economic rôle of the insect, it is evident that *solani* may be ranked as a pest, in all likelihood introduced there by commercial agencies.

Following the study of two lots of specimens recently received from Florida, the writer does not hesitate to refer to *solani* the material from South Africa listed below, which was initially thought to represent a local form of it.

MATERIAL EXAMINED. TRANSVAAL. Pretoria: 15.iii.1970, on *Encephalartos transvenosus* Stapf & Burtt Davy (Cycadaceae) (*C. J. Cilliers*).

Phenacoccus stelli (Brain, 1915) **comb. nov.**, fig 3

Pseudococcus stelli Brain, 1915: 146
Pseudococcus stelli tylococciformis Brain, 1915: 149
Pseudococcus stelli Brain; De Lotto, 1958: 110

In the redescription of this species, which was made from a single paratype, the writer (De Lotto, 1958) pointed out that the presence of the circulus could not be ascertained because the area where it is normally located was torn away, very probably by a dissecting needle during the process of removing the body contents. The study of supplementary material (part of which is listed below) revealed that in *stelli* the occurrence of the circulus is actually erratic: it may be present in some specimens and entirely lacking in others. When present, it is situated at the centre of the (iv) urosternite, rather small, transversely elongate with the surface membranous and it does not show any appreciable variation either in size or shape.

The accompanying diagram (fig. 3) was based upon an immature adult female 2,1 mm long and 1,2 mm wide.

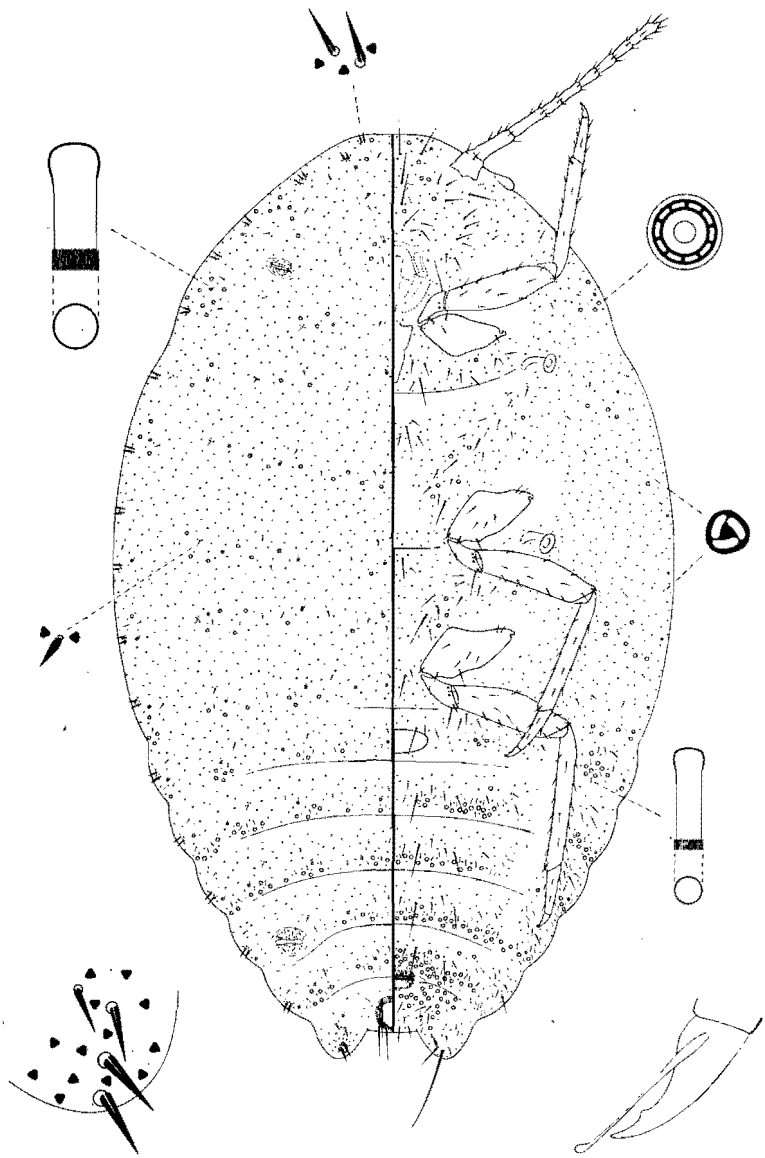

Fig. 3. *Phenacoccus stelli* (Brain).

MATERIAL EXAMINED. CAPE PROVINCE, Stellenbosch: 15.ix.1965, on *Leucadendron daphnoides* Meisn. (Proteaceae) (*S. van der Spuy*).

All remaining supplementary specimens at hand are from proteaceous plants, suggesting some specificity for that group of hosts. Originally *stelli* was collected on *Borbonia cordata* Linnaeus, a shrub of the Leguminosae.

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